The Nigerian Power Sector

A case study of Power sector reform and the role of PPP

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Background: Nigeria

Nigeria:
- Population is the **seventh** largest in the World, ~150 million people and largest in Africa (accounts for nearly **half** the total population of West Africa and **more than 15%** of the total population of the entire African Continent). **More than 40%** of the population less than 15 years old.

Power Sector:
- Nigeria's Power Supply Deficit can be estimated to 6000MW compared to the current 3500 MW average output
- The long standing supply deficits and poor quality of supply has made Nigeria the worlds largest market for diesel generators.
- Only 40% of the nation’s population have access to electricity supply
- Distribution and Transmission network capacity is severely constrained with high energy and commercial losses
The Composition of GDP Growth in Nigeria: 2009 and 2010
(contributions by sector to annual % growth)

The Economy
83% of Nigerian business owners state that a lack of electricity is the biggest obstacle to doing business (compare this to Indonesia 14% and Kenya 28%)
Source: Presidential Retreat On Power
The Present

INSTALLED VS. AVAILABLE CAPACITY

Current Average power generation is 3,200MW

Source: Presidential Retreat On Power
The Present

DISCO Commercial Revenues v. Operational Expenditure, incl. Power Purchases

Source: Bureau of Public Enterprises
It is hard to exaggerate Nigeria’s power-poverty. The seventh-most-populous country in the world, and its seventh-biggest oil exporter, has as much grid power as Bradford, a post-industrial town in the north of England.

(The Economist, May 28th, 2011)

• Nigeria’s short-comings in the power sector have had four major causes:
  – **Limited Accountability** – Utility companies require major reform of management incentives and operating environment
  – **Low Tariffs and Collection rates** – To finance much needed investments the revenue collection must be dramatically increased.
  – **Low levels of investments in delivery systems leading to capacity bottlenecks**
    Gas Supply, Generation and transmission system capacity will remain key constraints to increasing supply to end consumers; and
  – **Lack of quality investment planning** – Nigeria lacks a credible power demand forecast and a least cost system expansion plan to ensure efficiency and effectiveness of sector investments.
Challenges

• Ensuring the availability and reliability of gas supply for power generation through market and institutional reforms
• Considerable upstream infrastructure investments (billions of US$) will be required to remove bottlenecks not just in gas transportation but also (to a lesser extent) in gas production

Government Policies and Strategies

• Establishment of the Gas aggregator, development of a gas Network code and implementation of the gas master plan.
• Transition to the approved economic gas tariffs (under the Gas Pricing Policy).
• Establish comprehensive and transparent contractual framework for Gas supplies.

World Bank supports the establishment of a Commercial contractual framework with Partial Risk guarantees for Gas Supplies by Private Gas suppliers to state owned power plants.
Mutually-Reinforcing Cycle of Growth (Gas-Power-Industry-Power-Gas)

- Gas Based Industries
  - 2-3 World Scale Urea/Ammonia Plants
  - 1 World Scale Petrochemical Plant; 1 Methanol Plant

- Manufacturing Industries
  - Increased penetration of natural gas as fuel to manufacturing sector

- Gas to Power
  - Unprecedented growth in Gas to Power Supply – over 35% growth rate annually in power generation between 2010/15
Signing of first IOC GSAAs May 27\textsuperscript{th} 2011
Power Generation

Challenges
• Stabilize Power supply and reduce the number of power cuts and total system collapses
• Rehabilitate and restore full production at existing State Owned Power plants, complete construction of ongoing new Gas fired plants under the Nigeria Integrated Power Project (4700MW)
• Attract Private sector Investments to construct and operate IPPs

Government Policies and Strategies
• Make companies accountable – Privatization or Concession/mgt contracts
  • 6 PHCN GENCOs currently being bid out for up to 70% ownership
• Credit Enhancement through comprehensive package of sovereign and Multilateral guarantees, covering Political and liquidity risk for IPPs and privatized State Owned companies

World Bank Group supports the Power Generation Strategy by developing a series of Partial Risk guarantees paired with MIGA Political risk guarantees to cover liquidity and termination risk for IPPs/Privatised GENCOs signing PPAs with the government Bulk trader (Single Buyer)
Transmission and Distribution

Challenges

• Radial Transmission System only able to evacuate approximately 5000MW, with severely limited capacity to supply the northern part of the country.
• Elevated levels of Technical, Non technical and commercial losses leading to revenue recovery of 1 out of 2 units generated.
• Distribution customers are not metered (estimated bills to 80% ) and experience poor quality of supply with numerous daily power cuts and poor voltage/frequency

Government Policies and Strategies

• Make companies accountable – Privatization and Operational reform of distribution companies and fast track mgmt contract for Government owned Transmission Company
• Implement revised Multi Year Tariff Order increasing the average Tariff from 8 Naira/kWh to cost reflective levels (~ 21 Naira/kWh)
• Major Transmission Investment Program underway

World Bank supports Improved System performance by providing USD 300 million of grid investments, Advisory services on key performance indicators, system expansion, demand forecasting, commercial and quality of service improvements.
Conclusion and Recommendations

• **Focus to shift from Supply to Demand side**
  – Implement the recommendations for the revised MYTO as soon as possible. This is vital if reform is to succeed and build investor confidence.
  – Ensure Distribution Companies (private or public) meet quarterly revenue and performance targets and are encouraged to improve service quality and install metering of all consumers as soon as possible and latest by end of 2014.

• **Address persistent weaknesses in the Value chain**
  – Mainstream the use of the Gas Supply and Aggregation Agreements (GSAA)
  – Entrust the management of TCN to an experienced international transmission system operator
  – Bridge the Knowledge gap with development of a well founded Demand forecast, Least cost Generation development plan and corresponding long term Grid Expansion plan.

• **Response needed from Private sector**
  – Transparent, well structured projects aligned with sector regulations and with appropriate risk allocation between public and private parties.
  – Build strong consortia (Technical, Operational, Financial) to compete on privatization and concession offerings.
  – Investments and Service Innovations in the distribution sector